D2

Japanese Laid-open Patent
Laid-open Number: Sho 63-136527
Laid-open Date: June 8, 1988
Application Number: Sho 61-283314
Filing Date: November 27, 1986
Applicant: NEC Corporation

Description
1. Title of the Invention
Pressure-sensitive adhesive sheet for treating semiconductor substrate
2. Scope of Claim
A pressure-sensitive adhesive sheet for treating a semiconductor substrate, characterized by having a large number of fine holes.
3. Detailed Description of the Invention
[Field of the Industrial Application]
The present invention relates to a pressure sensitive adhesive sheet for treating a semiconductor substrate used in grinding/dicing etc.
[Prior Art]
In a case where back surface grinding of a semiconductor substrate is performed, a pressure-sensitive adhesive sheet is applied to the front surface side of the semiconductor substrate, that is, the side on which a device is fabricated, and the pressure-sensitive adhesive sheet is sucked to a suction base, followed by grinding.
Conventionally, such a kind of pressure-sensitive adhesive sheet has pressure-sensitive property but has no hole.
[Problems to be solved by the Invention]
In a case where the above-mentioned conventional pressure-sensitive adhesive sheet was used, such a defect has been found that since a semiconductor substrate is fixed only by the stickiness of the sheet, peeling off of the semiconductor substrate is liable to occur when a relatively strong force is applied thereto. Also, if the stickiness is increased, conversely the semiconductor substrate is hardly peelable and apt to be cracked. Also, there arises a disadvantage in that a paste material is apt to remain on the surface of the semiconductor substrate. In particular, those articles for which recently a more reduction in thickness as compared with the conventional articles is required, such as IC cards and memory cards, have problems in that since the amount of grinding is increased, the force applied at the time of grinding is increased, with the result that the articles

are liable to be peeled off; and that since the semiconductor substrate has become thinner when the pressure-sensitive adhesive sheet is peeled off after the grinding, the articles are liable to be cracked due to the stickiness of the sheet.

[Means for solving the Problems]

The pressure-sensitive adhesive sheet for treating a semiconductor substrate according to the present invention has a large number of fine holes.

[Example]

Next, the present invention will be explained with reference to the drawings.

Fig. 1 is a top view of an example of the present invention; and Fig. 2 is a longitudinal cross-sectional view taken along the line A-A' in Fig. 1. The size of fine hole is about 0.5 mm to about 2.0 mm in diameter. Fig. 3 is a longitudinal cross-sectional view illustrating a state where the pressure-sensitive adhesive sheet of the present invention is used to make a semiconductor substrate be sucked on a suction base. The semiconductor substrate is fixed not only by the adhesion of the sheet but also by direct suction of it onto the suction base through the fine holes.

In a case where the back surface grinding is performed by the method illustrated in Fig. 3, the semiconductor substrate is sucked by a force stronger than that in the case where the conventional pressure-sensitive adhesive sheet is used, during the grinding, that is, while being sucked onto the suction base, so that the probability in which the semiconductor substrate is peeled off during the grinding becomes extremely small. Also, when the pressure-sensitive adhesive sheet is peeled after the grinding, the pressure-sensitive adhesive sheet of the present invention is easier to peel since it has a bonding area smaller than that of the conventional pressure-sensitive adhesive sheet and hence the adsorption power by the pressure-sensitive adhesive sheet alone is small. Accordingly, the probability of occurrence of cracking at the time of peeling the pressure-sensitive adhesive sheet becomes smaller.

[Effect of the Invention]

As described above, the present invention has effects of firmly fixing the semiconductor substrate not only by the adhesion of the sheet but also by direct suction thereof from the suction base at the time of grinding the semiconductor substrate or dicing it by through cut by the provision of the large number of fine poles, thereby being capable of preventing peeling off of the semiconductor substrate during the working.

Also, in a case where the pressure-sensitive adhesive sheet is to be peeled off, it is easier to peel so that the

occurrence of cracking can be prevented.

4. Brief Description of the Drawings

Fig. 1 is a top view showing a pressure-sensitive adhesive sheet for semiconductor substrates according to the present invention; Fig. 2 is a longitudinal cross-sectional view taken along the line A-A' in Fig. 1; and Fig. 3 is a longitudinal cross-sectional view illustrating the state where the pressure-sensitive adhesive sheet of the present invention is used to make the semiconductor substrates be sucked on a suction base.